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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SHEN, QUN

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,943	Applicant(s) JU ET AL.	
	Examiner QUN SHEN	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This communication is a First Action non Final on the merits. Claims 1-32, as originally filed, are currently pending and have been considered below.

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. Korea 10-2004-0016292 and 10-2004-0016293, both filed on March 10, 2004.

Drawings

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because Figures 3-8 are not legible. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: (*See MPEP Ch. 2141*)

Determining the scope and contents of the prior art;
Ascertaining the differences between the prior art and the claims in issue;
Resolving the level of ordinary skill in the pertinent art; and
Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

3. Claims 1-9, 11, 23-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2005/0159158 A1, Pardeep et al. (hereinafter Pardeep), in view of US 2006/0234706 A1, Wallentin (hereinafter Wallentin), and further in view of NPL , "Overview of EIA/TIA IS-41", Yu, *Personal, Indoor and Mobile Radio Communications, 1992. Proceedings, PIMRC '92, Third IEEE International Symposium*, pp.220-224, Oct 19-21, 1992 (hereinafter Yu).

As to claim 1, Pardeep discloses a method for management of a trunk line between an asynchronous mobile switching center and a synchronous mobile switching center for handover of a dual-band dual-mode mobile communication terminal capable of communicating with both an asynchronous mobile communication system and a synchronous mobile communication system (Fig 4, cdma2000 radio access network being a synchronous mobile communication system, GSM being an asynchronous communication system, with MSCs (308 and 408) associated with respective communication system for providing mobile handoff between two networks). Pardeep does not expressly disclose checking a status of the trunk line between the

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asynchronous mobile switching center and the synchronous mobile switching center by transmitting/receiving at least one of trunk line management messages between the asynchronous mobile switching center and the synchronous mobile switching center, when the asynchronous mobile switching center and the synchronous mobile switching center are in an invoke state, the trunk line management messages including a circuit reset message, a circuit interruption message and a trunk line test message.

Wallentin teaches resetting procedure between two network control nodes in the situations where potential communication failure may occur (Wallentin: Figs 1, 3, par 0020, the control nodes can be MSCs, BSCs etc.). Furthermore, IS-41 standard has long provisioned and defined MSC O&M operations including circuit reset, block (interrupt) and unblock (interrupt release), and trunk test messages for MSC and network operation and maintenance (Yu: section 4.6, page 222). Therefore, consider Pardeep's teachings on synchronous and asynchronous mobile communication handover (both MSCs would be in active state (an invoke state) during the handover), Wallentin's teachings in detailed reset message protocol, including resetting request and acknowledgement, and Yu's teachings on O&M messages in IS-41B standard, it would have been obvious to one of skill in the art at the time of invention to modify Pardeep's method by incorporating the resetting messaging of Wallentin, and O&M messages (circuit reset, blocking/unblocking, TrunkTest, TrunkTestDisconnect) of Yu (IS-41) to assure reliable inter-system handover between asynchronous and synchronous communication network.

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As to claim 2, Pardeep as modified discloses the method as claimed in claim 1, wherein the status of the trunk line is confirmed by the synchronous mobile switching center when a trunk line management message has been transmitted from the asynchronous mobile switching center to the synchronous mobile switching center and is confirmed by the asynchronous mobile switching center when the trunk line management message has been transmitted from the synchronous mobile switching center to the asynchronous mobile switching center (Pardeep: Fig 3, when GSM MSC initiates trunk communication, for example, handover communication is from GSM to cdma2000 using the messages defined by IS-41 and reset request and acknowledgement or response see Wallentin: Figs 1, 3, also see analysis of claim 1).

As to claim 3, Pardeep as modified discloses the method as claimed in claim 1, wherein the asynchronous mobile switching center transmits a trunk line management message to the synchronous mobile switching center and then receives a response message for the trunk line management message or the synchronous mobile switching center transmits the trunk line management message to the asynchronous mobile switching center and then receives the response message for the trunk line management message (Wallentin: Fig 1: 130 RESET RESPONSE MESSAGE, the control node (120) may include synchronous MSC to setup the response message of the reset protocol, see analysis of claims 1 and 2).

As to claim 4, Pardeep as modified discloses the method as claimed in claim 1, wherein

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the circuit reset message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center when it is necessary to use a trunk line between the asynchronous mobile switching center and the synchronous mobile switching center or in order to reproduce status information of a damaged circuit and reset the damaged circuit (Wallentin: par 0020, note that when handover is initiated from one network to another, either from asynchronous network to synchronous one, or vice versa, the trunk line between MSCs would be used and therefore their operation status needs to be tested. Producing a test status report would have been the natural outcome or test result as commonly practice in the field).

As to claim 5, Pardeep as modified discloses the method as claimed in claim 3 but does not expressly disclose wherein the circuit reset message includes a parameter (InterMSCCircuitID) of the internal switching center circuit ID and the response message includes a parameter (TrunkState) of the status information of the trunk line. ANSI-41 defines InterMSCCircuitID as a parameter for inter MSC handover (MSC circuit ID is the identity of the MSC, see par 6, Silva, US 2005/0197122 A1 (one of the references pertinent but not used for rejection). Furthermore, trunk line status information would be the test results delivered by the test procedure – a common practice in running equipment testing, see analysis of claim 4). Therefore it would have been obvious to one of skill in the art to use MSC circuit ID as a parameter (to identify the MSC under test) and provide and determine the trunk status of MSCs under test.

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As to claim 6, Pardeep as modified discloses the method as claimed in claim 1, wherein the circuit interruption message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center in order to confirm interruption of a connection between the asynchronous mobile switching center and the synchronous mobile switching center (see analysis of claims 1 and 2, O&M messages including blocking (interruption) message, similar message protocol to Wallentin's for circuit reset may be applied for blocking/unblocking).

As to claim 7, Pardeep as modified discloses the method as claimed in claim 1, but does not expressly suggest wherein the circuit interruption message includes a parameter (InterMSCCircuitID) of the internal switching center circuit ID (see analysis of claims 1, 5 and 6).

As to claim 8, Pardeep as modified discloses the method as claimed in claim 1, wherein the trunk line management messages further comprise a circuit interruption release message (see claim 1, unblocking (e.g. interruption release) message), and the trunk line is reactivated by the circuit interruption release message when the circuit interruption release message has been transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center (feature of unblocking, Yu: section 4.6, page 222).

As to claim 9, Pardeep as modified discloses the method as claimed in claim 1, wherein

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the trunk line test message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center in order to determine if the trunk line between the asynchronous mobile switching center and the synchronous mobile switching center exactly operates (TrunkTest as defined in IS-41B may be apply to inter MSCs testing including MSCs between asynchronous and synchronous MSCs, see analysis of claim 1).

As to claim 11, Pardeep as modified discloses the method as claimed in claim 1, wherein the trunk line management messages further comprise a trunk line test release message and a test of the trunk line is completed when the trunk line test release message is transmitted/received between the asynchronous mobile switching center and the synchronous mobile switching center (Yu: section 4.6, page 222, TrunkTestDisconnect, e.g. test release).

As to claim 23, claim 23 is a system claim that encompasses and necessitates method claims 1 and 2. Rejection of claims 1 and 2 are therefore incorporated herein (see analysis and rejections above).

As to claim 24, Pardeep as modified discloses the system as claimed in claim 23, wherein the trunk line management message comprises at least one of a circuit reset message, a circuit interruption message and a trunk line test message (see analysis of claim 1).

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As to claims 25 – 30, claims 25-30 are rejected with the same reason set forth in claims 4-9, respectively (see analysis and rejections above).

4. Claims 12, 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 2005/0073977 A1 Vanghi et al. (hereinafter Vanghi), in view of Wallentin and further in view of Yu.

As to claim 12, Vanghi discloses a method for management of a trunk line between an asynchronous mobile switching center and a synchronous mobile switching center for handover of a dual-band dual-mode mobile communication terminal capable of communicating with both an asynchronous mobile communication system and a synchronous mobile communication system (Figs 1-2, UMTS being asynchronous network, cdma2000 being synchronous network). Vanghi further discloses the Asynchronous and synchronous mobile switching centers are being connected to and communicate through interworking interoperability function unit (Fig 2: 116,130, 126, Fig 7: 712, 714, 732) but does not expressly disclose checking a status of the trunk line between the asynchronous mobile switching center and the synchronous mobile switching center by transmitting/receiving at least one of trunk line management messages, including a circuit reset message, a circuit interruption message and a trunk line test message.

Wallentin teaches resetting procedure between two network control nodes in the situations where potential communication failure may occur (Wallentin: Figs 1, 3, par

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0020, the control nodes may include MSCs). Furthermore, IS-41 standard supported by cdma2000 has long provisioned MSC O&M messages including circuit reset, block (interrupt) and unblock, and trunk test messages for MSC and network operation and maintenance (Yu: section 4.6, page 222). Therefore, consider Vanghi's teachings on synchronous and asynchronous mobile communication handover and MSCs of both systems are connected and communicated through an IWF unit, Wallentin's teachings in detailed reset message protocol, including resetting request and acknowledgement, and Yu's teachings on O&M messages in IS-41B standard, it would have been obvious to one of skill in the art at the time of invention to modify Vanghi's method by incorporating the resetting messaging of Wallentin, and O&M messages (circuit reset, blocking/unblocking, TrunkTest, TrunkTestDisconnect) of Yu to assure reliable inter-system handover between asynchronous and synchronous communication network.

As to claim 14, Vanghi as modified discloses the method as claimed in claim 12, wherein the status of the trunk line is confirmed by the synchronous mobile switching center when a trunk line management message has been transmitted from the asynchronous mobile switching center to the synchronous mobile switching center through the interworking interoperability function unit and is confirmed by the asynchronous mobile switching center when the trunk line management message has been transmitted from the synchronous mobile switching center to the asynchronous mobile switching center through the interworking interoperability function unit (Vanghi: Figs 1, 7 when UMTS MSC initiates trunk communication, for example, handover

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communication is from UMTS to IS-41 MSC (for cdma2000) using the messages defined by IS-41 and reset request and acknowledgement or response, see Wallentin: Figs 1,3, also see claim of claim 12).

15. The method as claimed in claim 12, wherein the asynchronous mobile switching center transmits a trunk line management message to the synchronous mobile switching center through the interworking interoperability function unit and then receives a response message for the trunk line management message, or the synchronous mobile switching center transmits the trunk line management message to the asynchronous mobile switching center through the interworking interoperability function unit and then receives the response message for the trunk line management message (Wallentin: Fig 1: 130 RESET RESPONSE MESSAGE, the control node (120) may include synchronous MSC to setup the response message of the reset protocol, see analysis of claims 12 and 14).

As to claims 16-21, claims 16-21 recite equivalent limitations to claims 4-9, except in the base claim 12, an interworking interoperability function unit is applied between the asynchronous and synchronous mobile switching centers (MSCs) (see analysis and rejection of claim 12). Therefore, claims 16-21 are rejected with the same reason set forth in claims 4-9 with the motivation provided in claim 12 (see analysis and motivation of claim 12, and analysis and rejections of claims 4-9).

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5. Claims 10 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Pardeep, in view of Wallentin, and further in view of Yu and US 5,570,411, Sicher (hereinafter Sicher).

As to claim 10, Pardeep as modified discloses the method as claimed in claim 1 and wherein the trunk line test message includes parameters of an internal switching center circuit ID (InterMSCCircuitID) (see claims 1 and 5) but does not expressly disclose a seizure type (SeizureType). In the same field of endeavor, Sicher teaches Seizure type can be included in the handover operation. Consider the combined teachings, it would have been obvious to one of skill in the art at the time of invention to incorporate Sicher's teachings of seizure type for handover type in Pardeep as modified's method of trunk testing message to take handover priority into consideration.

Claim 31 is rejected with the same reason set forth in claim 10 (see analysis and rejection above).

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 2005/0073977 A1 Vanghi et al. (hereinafter Vanghi), in view of Wallentin and further in view of Yu and Pardeep.

As to claim 13, Vanghi as modified discloses the method as claimed in claim 12, wherein the asynchronous mobile switching center and the interworking interoperability

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function unit exchanges the trunk line management messages and the asynchronous mobile switching center and the interworking interoperability function unit exchanges the trunk line management messages in order to check the status of the trunk line between the asynchronous mobile switching center and the synchronous mobile switching center (see analysis of claim 12). Vanghi as modified does not expressly disclose the trunk line management messages are based on an ISUP and an MAP protocols, respectively. Pardeep suggests both protocols being used for GSM MSC and MAP protocol for cdma2000 (Pardeep: Fig 1, pars 0005, 0050, SS7 ISUP protocol for GSM MSC, pars 0065-0066, asynchronous network, MAP messages for cdma2000, synchronous network). In fact, such protocols have been defined in network protocol such as IS-41 or ANSI-41, therefore use of these protocols is implied in Vanghi as modified's method. Nevertheless, consider the combined teachings, it would have been obvious to one of skill in the art at the time of invention to incorporate Pardeep's teachings on the message or signaling protocols in Vanghi's method to execute the trunk line management as appropriate.

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7. Claim 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Vanghi, in view of Wallentin and further in view of Yu and Sicher.

As to claim 22, Vanghi as modified discloses the method as claimed in claim 12 and wherein the trunk line test message includes parameters of an internal switching center circuit ID (InterMSCCircuitID) (see claims 12 and) but does not expressly disclose a

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seizure type (SeizureType). In the same field of endeavor, Sicher teaches Seizure type can be included in the handover operation. Consider the combined teachings, it would have been obvious to one of skill in the art at the time of invention to incorporate Sicher's teachings of seizure type for handover type in Vanghi as modified's method of trunk testing message to take handover priority into consideration.

8. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pardeep, in view of Wallentin, and further in view of Yu and Vanghi.

As to claim 32, Pardeep as modified (by Wallentin and Yu) discloses the system as claimed in claim 23 and further discloses the trunk line management message based on an ISUP protocol from the asynchronous mobile switching center and then transmits the trunk line management message based on an MAP protocol to the synchronous mobile switching center (Pardeep: Fig 1, pars 0005, 0050, SS7 ISUP protocol for GSM MSC, pars 0065-0066, asynchronous network, MAP messages for cdma2000, synchronous network, see motivation in claim 1), and receives the trunk line management message based on an MAP protocol from the synchronous mobile switching center and then transmits the trunk line management message based on an ISUP protocol to the asynchronous mobile switching center (opposite direction of communication, discussion above applies).

Pardeep as modified does not expressly disclose the management messages are communicated through an interworking interoperability function unit. In the same field of

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endeavor, Vanghi teaches that the UMTS MSC and cdma2000 MSC may be connected to and communicated through an interworking interoperability function unit (Vanghi: Figs 2, 7, also see analysis of claim 12). Therefore, consider Pardeep as modified and Vanghi's teachings together, it would have been obvious to one of skill in the art at the time of invention to further modify Pardeep as modified's method by incorporating Vanghi's teachings on IWF between two MSCs to facilitate the interoperability and translate the message when communicating the trunk line management message.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUN SHEN whose telephone number is (571)270-7927. The examiner can normally be reached on Monday through Thursday, 9:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis West can be reached on 571-272-7859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/QUN SHEN/

Examiner, Art Unit 2617

/Lewis G. West/

Supervisory Patent Examiner, Art
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